

CLAIMS

1. Formulation of nonmagnetic toners for use in a non-magnetic toning system (NMTS) comprising:

5 a primary toner resin;

a polypropylene wax;

a charge control additive; and

a primary colorant.

2. The formulation of claim 1 further comprising a secondary resin.

10 3. The formulation of claim 1 wherein the primary toner resin is a styrene based resin.

4. The formulation of claim 3 wherein the styrene based resin is selected from the group consisting of styrene-acrylic, styrene-methyl methacrylate, styrene-butyl methacrylate, styrene-ethylhexyl methacrylate, polystyrene, styrene butadiene and mixtures thereof.

5. The formulation of claim 2 wherein the secondary resins are selected from the group
15 consisting of styrene based polyesters, styrene-based resins of claim 3, non-styrene based polyamides and non-styrene based polyesters and mixtures thereof.

6. The formulation of claim 1 wherein the primary colorant comprises a plurality of primary colorants.

7. The formulation of claim 1 wherein the primary resins comprise at least about 88 percent
20 by weight of the formulation.

8. The formulation of claim 1 wherein the polypropylene wax comprise at least about 8 percent by weight of the formulation.
9. The formulations of claim 1 wherein the charge control additive is at least about 1 percent by weight of the formulation.
- 5 10. The formulation of claim 1 further comprising a post process additive.
11. The formulation of claim 10 wherein the post process additive is a silica.
12. The formulations of claim 10 wherein the post process additive is a titania .
13. The formulation of claim 1 wherein the NMTS is compatible with an electrographic printing system.
- 10 14. The formulation of claim 1 wherein the NMTS is compatible with an electrophotographic printing system.
15. An NMTS interchangeable with a magnetic toning system in a printing system using the toner formulation of any one of claims 1-14 comprising:
 - at least three rotating components;
 - 15 a metering blade assembly associated with at least one of the at least three rotating components;
 - an actuating assembly which engages one rotating component of the NMTS's at least three rotating components with the printing system; and
 - an enclosure housing the at least three rotating components and metering blade assembly.

16. The NMTS of claim 15 wherein the at least three rotating components comprise a transfer roller, a donor roller and a one or more mixer blades.
17. The NMTS of claim 15 wherein the transfer roller is motor driven.
18. The NMTS of claim 15 wherein the transfer roller is comprised of a conductive metal
5 shaft.
19. The NMTS of claim 18 wherein the metal shaft conducts electricity.
20. The NMTS of claim 15 wherein the transfer roller includes a dielectric surface.
21. The NMTS of claim 20 wherein the dielectric surface comprises a photoreceptive material.
- 10 22. The NMTS of claim 21 wherein the dielectric surface is neoprene.
23. The NMTS of claim 16 wherein the donor roller is motor driven.
24. The NMTS of claim 16 wherein the donor roller conducts electricity.
25. The NMTS of claim 16 wherein the donor roller contains a fur coating.
26. The NMTS of claim 16 wherein the one or more mixer blades is motor driven.
- 15 27. The NMTS of claim 16 wherein the one or more mixer blades continuously mixes a supply of toner particles.
28. The one or more mixer blades of claim 27 wherein toner particles from the supply of toner particles are uniformly supplied to the donor roller.

29. The NMTS of claim 15 wherein the metering blade assembly comprises two spring-loaded blades.

30. The metering blade assembly of claim 29 wherein the spring-loaded blades are mounted at oblique angles to the transfer roller.

5 31. The metering blade assembly of claim 30 wherein each of the spring-loaded blades has a base and an edge.

32. The metering blade assembly of claim 31 wherein a tribocharging interface is created at the edge of at least one of the spring-loaded blades.

33. The NMTS of claim 15 wherein the actuating assembly includes as solenoid.

10 34. The NMTS of claim 15 wherein the one of the NMTS's at least three rotating components is engaged by the actuating assembly to a dielectric imaging surface of the printing system.

35. The NMTS of claim 34 wherein the one of the NMTS's at least three rotating components contacts the dielectric imaging surface during an imaging process.

15 36. The NMTS of claim 35 wherein the one of the NMTS's at least three rotating components is the transfer roller.

37. The NMTS of claim 34 wherein the dielectric imaging surface is part of a dielectric imaging drum.

38. The NMTS of claim 34 wherein the dielectric imaging surface is part of a dielectric imaging belt.
39. The NMTS of claim 15 wherein the printing system is electrographic.
40. The NMTS of claim 15 wherein printing system is electrophotographic.
- 5 41. The NMTS of claim 15 wherein at least one of the at least three rotating components separates from the dielectric imaging surface when the printing system is not imaging.
42. The NMTS of claim 41 wherein the at least one of the at least three rotating components a transfer roller.
43. The NMTS of claim 15 further comprising sensor components.
- 10 44. The sensor components of claim 43 comprising a motion sensor, a toner storage sensor and a speed sensor.
45. The NMTS of claim 15 wherein the enclosure accommodates a transfer roller, a donor roller, mixer blades, a metering blade assembly, a mounting system for an actuating assembly, an intermediate storage for a toner, a plurality of electronic components, a wiring harness and
- 15 connectors, and a toner dispensing system.
46. A method of printing comprising:

providing a formulation of a non-magnetic toners;

placing the non-magnetic toner in an interchangeable NMTS;

replacing a magnetic toning system of a printing system with the NMTS in a compatible printing system; and

5 printing to a print medium.

47. The method of claim 46 wherein the formulations of non-magnetic toners are the toners of claim 1.

48. The method of claim 46 wherein the magnetic toning system in the compatible printing system is replaced with the NMTS of claim 15.